EXCEPTIONAL EVENTS UPDATES
Case Study: High Wind PM Demonstration

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Revised Regulatory Structure

The demonstration must include:

(A) A narrative *conceptual model*

(B) Demonstration that the event affected air quality in such a way that there exists a *clear causal relationship* between the specific event and the monitored exceedance or violation

(C) Analysis comparing the event-influenced concentration to concentrations at the same monitoring site at other times

(D) Demonstration of the event was both *not reasonably controllable and not reasonably preventable (nRCP)*

(E) Demonstration that the event was a human activity that is unlikely to recur at a particular location or was a *natural event*

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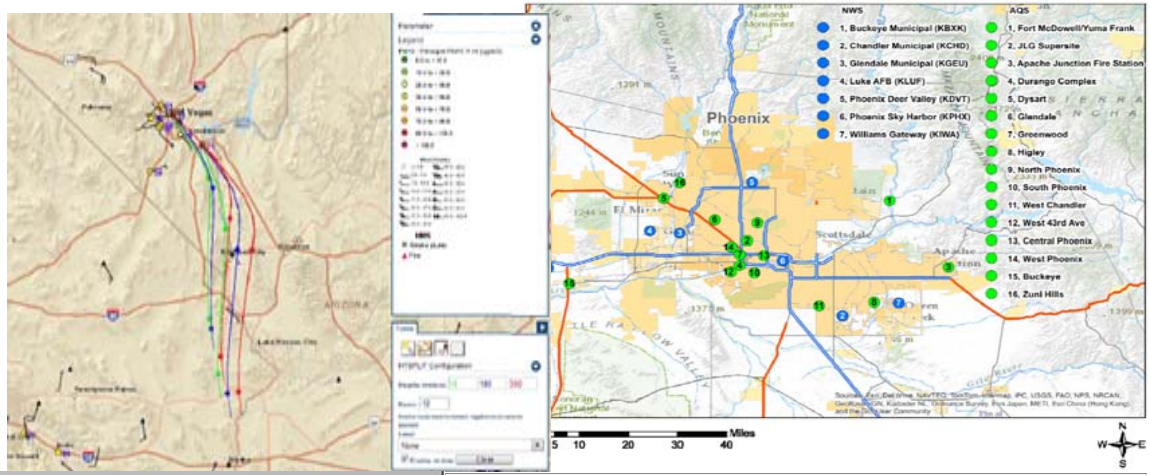
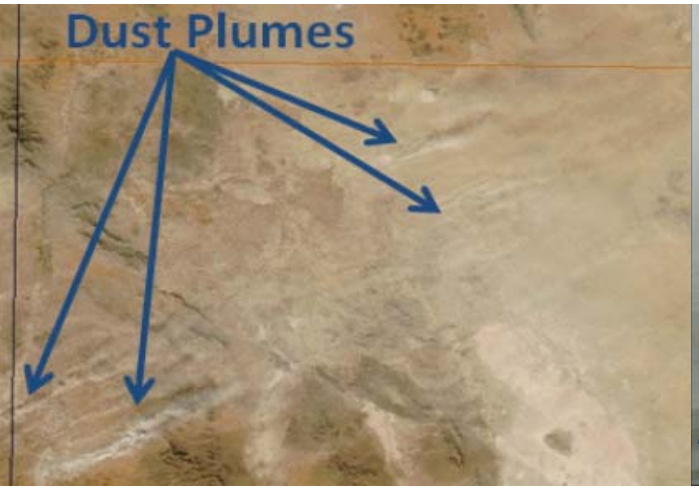
Conceptual Model

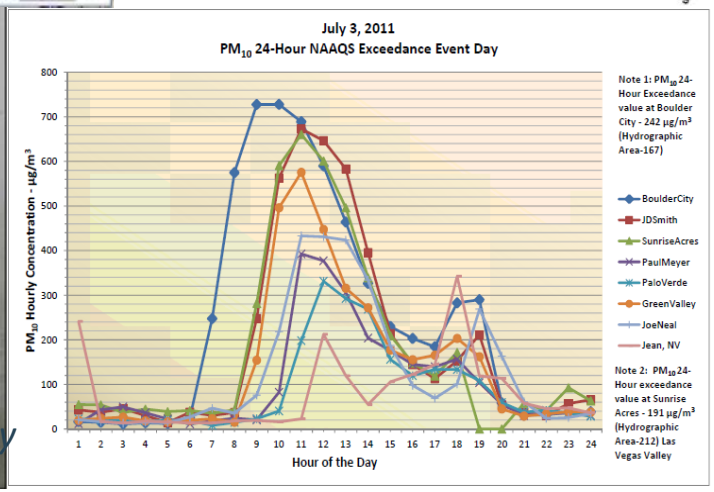
How emissions from the event(s) led to the exceedance or violation at the affected monitor(s);

- Description of the geographic area
- PM monitor locations
- Event specific summary
  - PM concentrations
  - Event cause/winds/impacts/timeframes

PM measurements, maps, satellite/model images, back trajectories; wind data, graphs, photographs, etc.







High Wind Dust Events

- High wind dust events will be considered natural events in cases where windblown dust is entirely from natural undisturbed lands in the area or where all anthropogenic sources are reasonably controlled.

- EPA will accept a high wind threshold of a sustained wind of 25 mph for areas in the States of… provided this value is not contradicted by evidence in the record at the time the State submits a demonstration

- New rule criteria for large-scale and high-energy high wind dust events

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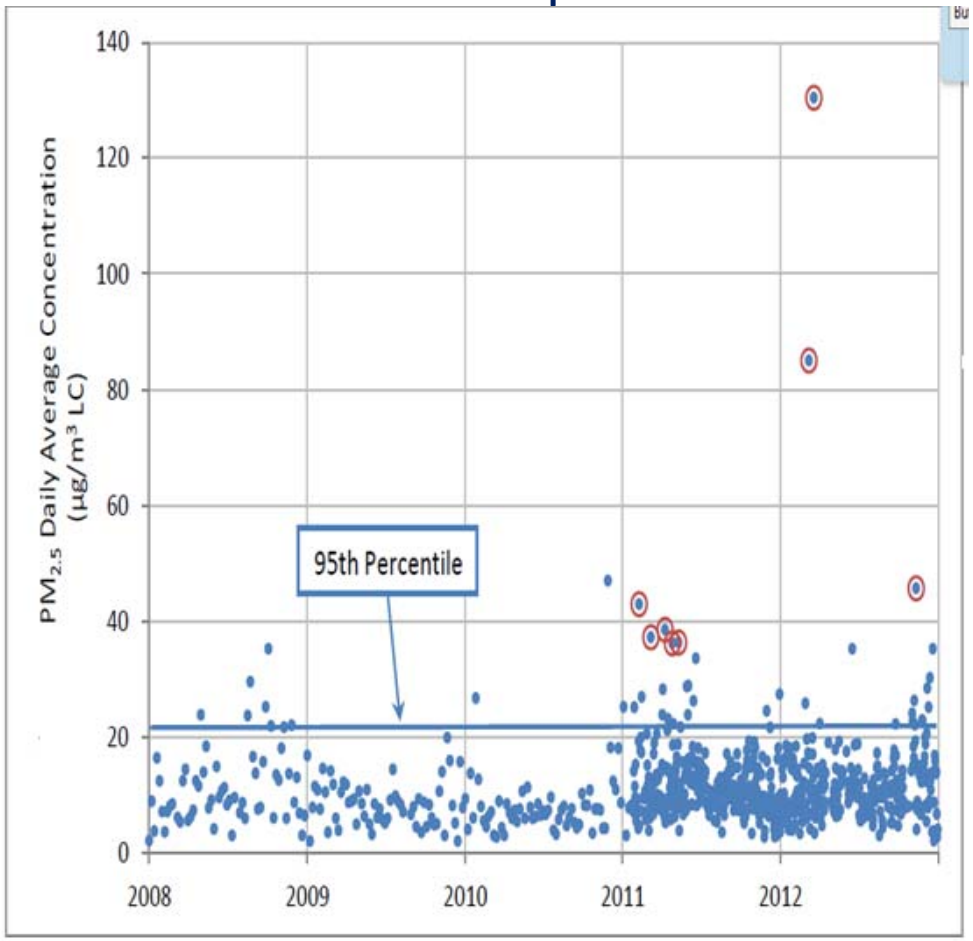
Comparison of the Claimed Event Concentrations



DEMONSTRATION EXCERPT:

Event In Excess of Normal Historical Fluctuations

- the flagged $PM_{2.5}$ and PM_{10} concentrations during the proposed exceptional event days were among the **highest** five **percent** of measurements at the affected sites and thus were well above normal historical fluctuations.

New Rule:

- **Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times** to support the clear causal demonstration requirement. **The Administrator shall not require a State to prove a specific percentile point in the distribution of data**;

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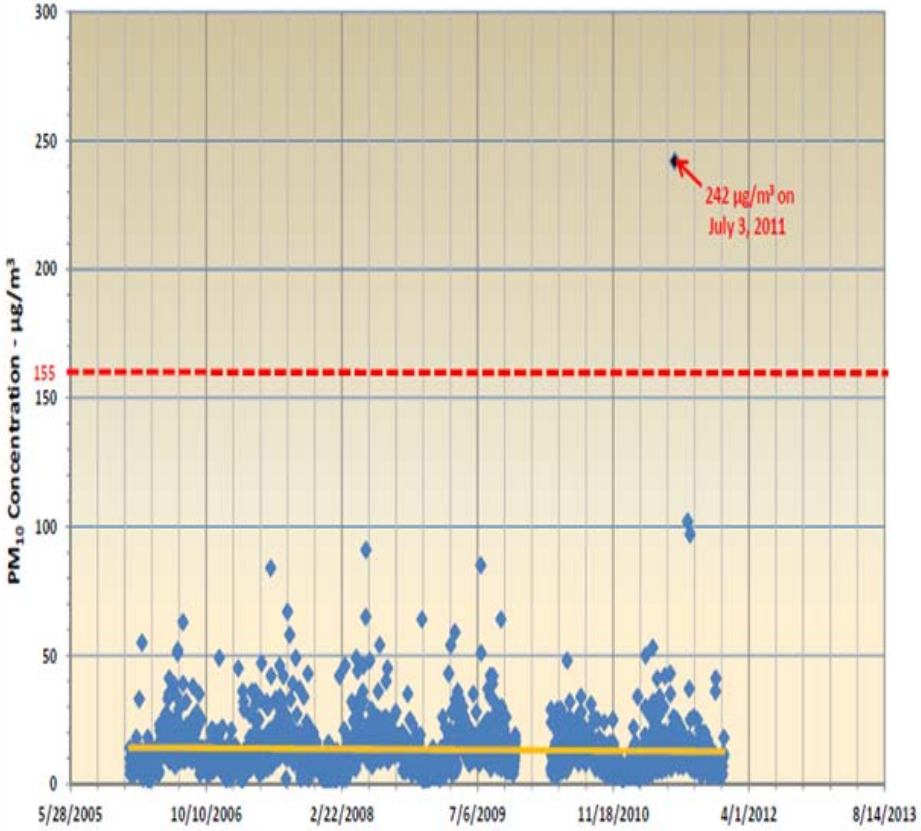
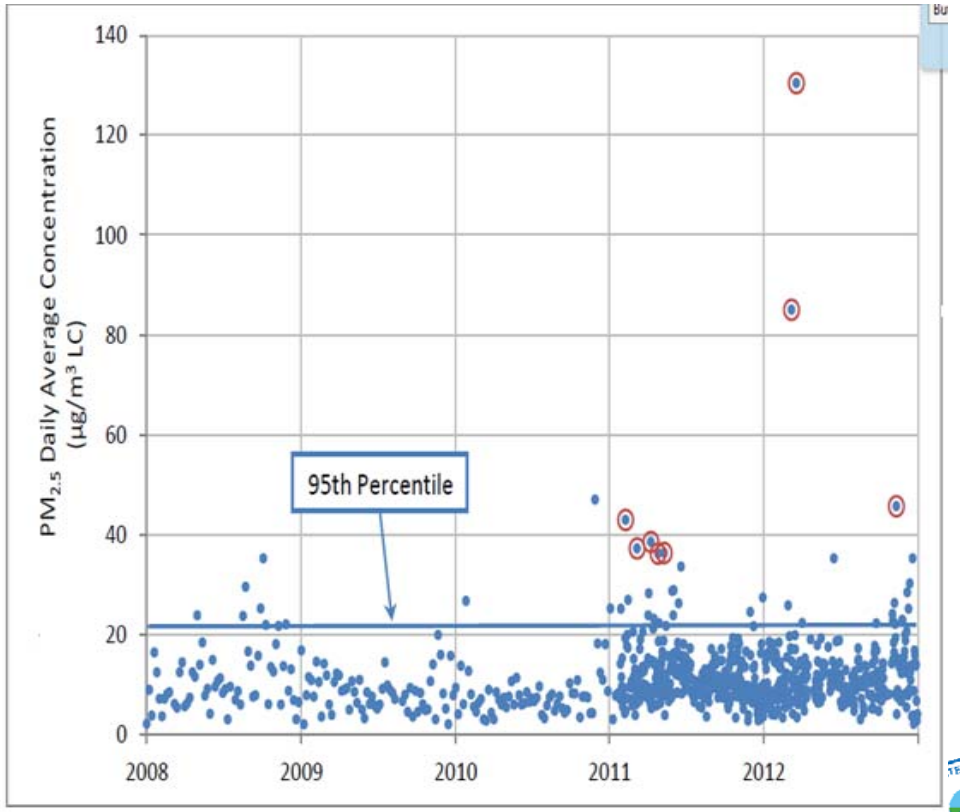
Comparison of the Claimed Event Concentrations to concentrations at the same monitoring site at other times





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Not Reasonably Controllable or Preventable: Evaluation of Reasonable Control

High wind dust events

- EPA will accept a high wind threshold of a sustained wind of 25 mph for areas in the States of… provided this value is not contradicted by evidence in the record at the time the State submits a demonstration

- EPA will consider high wind dust events to be natural events in cases where windblown dust is entirely from natural undisturbed lands in the area or **where all anthropogenic sources are reasonably controlled**

- Dust controls on anthropogenic sources shall be considered reasonable in any case in which the controls render the anthropogenic source as resistant to high winds as natural undisturbed lands in the area

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Not Reasonably Controllable or Preventable: Evaluation of Reasonable Control

- the State must include the following components:
- (A) Identification of the natural and anthropogenic sources of emissions causing and contributing to the monitored exceedance or violation, including the contribution from local sources.
- (B) Identification of the relevant state implementation plan, tribal implementation plan, or federal implementation plan or other enforceable control measures in place for the sources identified in paragraph (b)(8)(vii)(A) of this section and the implementation status of these controls.
- (C) Evidence of effective implementation and enforcement of the measures identified in paragraph (b)(8)(vii)(B) of this section.

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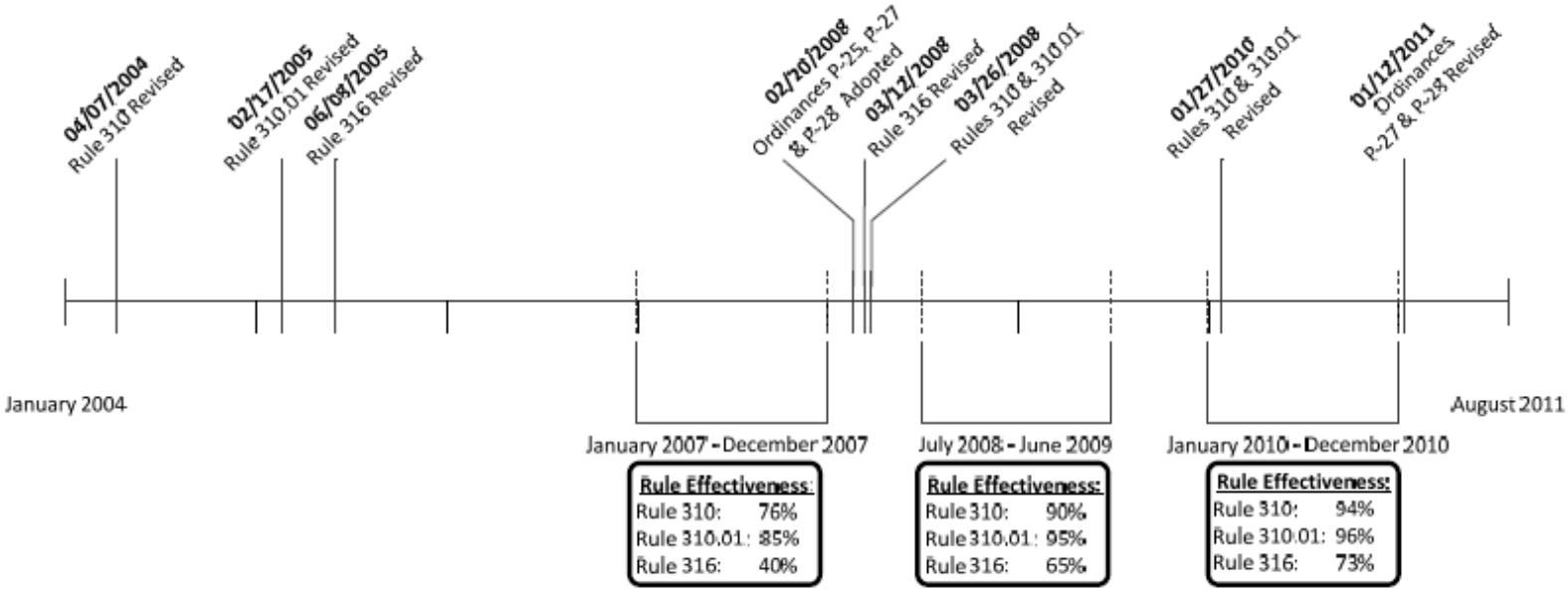
Not Reasonably Controllable or Preventable: SIP Approvals and Control Measures

- Timeline can be helpful
  - SIP approval within 5 years of the event



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Large scale high energy high wind dust events

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Large-scale and high energy high wind dust events

For large-scale and high-energy high wind dust events, the Administrator will generally consider a demonstration documenting the nature and extent of the event to be sufficient with respect to the not reasonably controllable criterion… provided the State provides evidence showing that the event satisfies the following:

- The event is associated with a dust storm and is the focus of a Dust Storm Warning.
- The event has sustained winds that are greater than or equal to 40 miles per hour.
- The event has reduced visibility equal to or less than 0.5 miles.

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Large scale high energy high wind dust events

DATE	PM_{10}	PM_{10}	PM_{10}	PM_{10}	PM_{10}	PM_{10}
2/11/2012	77	45	46	71	158	130
2/14/2012	171	106	167	ND	114	123
2/28/2012	116	183	29	192	276	301
3/2/2012	169	221	52	76	153*	251
3/7/2012	520	482	1098	313	656	610
3/18/2012	1739	1606	646	1449	1691	1261
4/1/2012	96	79	50	53	138	157
4/7/2012	88	60	30	171	80	86
4/14/2012	751	803	927	794	961	880
4/26/2012	259	274	198	464	408	ND
5/23/2012	115	121	86	214	143	163
6/15/2012	167	99	215	75	203	143
11/10/2012	469	396	48	44	230	331
12/14/2012	111	ND	9	16	136	199
12/19/2012	ND	ND	381	397	365	500

Table 1-1. 24-hour average concentrations for high wind blowing dust exceedances.

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Large scale high energy high wind dust events

particulate measurements on exceptional event days.

Type	Method	11/28/2010	02/08/2011	03/07/2011	04/03/2011	04/09/2011	04/26/2011	05/10/2011	03/07/2012	03/18/2012	11/10/2012
$PM_{2.5}$	FRM	37.9	**36.8**		25.2	**48.7**					
$PM_{2.5}$	AC	28.7	23.9	29.0	20.9	28.5	28.2	27.5			20.4
$PM_{2.5}$	FRM	47.0	**42.9**		23.8	**38.5**					
$PM_{2.5}$	FEM		28.4	**37.2**	33.0	33.8	**36.2**	**36.3**	**85.0**	**130.4**	**45.7**
$PM_{2.5}$	AS	47.4		38.7	24.4	26.8			69.1		
$PM_{2.5}$	AC	43.9	35.1	39.1	29.7	32.8	47.0	35.4	71.2	89.2	38.4
$PM_{2.5}$	AC		24.1	44.5	38.7	38.4	80.8	39.8	73.4	109.7	29.4
PM_{10}	FRM	146	114		83	123					
PM_{10}	FRM	84	82		80	114					
PM_{10}	C	159	143	185	120	157	161	111		601	175
PM_{10}	FRM				80	126					
PM_{10}	C	196	147	232	166	152	327	142	385	748	257
PM_{10}	FRM	**249**			**159**	**169**					
PM_{10}	C	251	162	288	167	171	253	131			

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Questions and Comments